

## ABSTRACT

The present invention relates generally to the field of generating genetically modified C57 mice. More particularly, the present invention pertains to 1) blastocyst-derived mouse embryonic stem cell (ES) cell lines including, but not limited to, the IC1, IC2, IAC1, IAC2, IAC3, IAC4, IAC5, IAC6, IAC7 or IAC8 ES cell line, 2) to efficient methods of making genetically modified C57 mice by introducing the modified C57 ES cells into the mouse blastocysts of either the same mouse strain and/or color of albino C57 strain, or other C57 strain, to generate genetically modified novel, useful and hereto unknown models of C57 mice, and to methods for identifying the chimerism of chimeras which can be not known by coat color.